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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/614,095	07/08/2003	Seiichi Yamamoto	FSF-031401	8356

37398 7590 02/06/2006

TAIYO CORPORATION  
401 HOLLAND LANE  
#407  
ALEXANDRIA, VA 22314

EXAMINER
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CHEA, THORL

ART UNIT	PAPER NUMBER
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1752

DATE MAILED: 02/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/614,095

Applicant(s)

YAMAMOTO, SEIICHI

Examiner

Thorl Chea

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on November 18, 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 13-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on November 18, 2005 has been entered.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The invention claimed in claim 1 is confusing with respect to the language in the claim and in the specification. See the language "90 % or more of a total iridium amount is contained in core of the grains, wherein the core of the grains correspond to 50 % of the total mole % of the silver halide in the grain. The specification on page 12 discloses "in the invention, a core of 50 % means a core portion corresponding to 50 % of total mol of silver in the grain". The specification fails to clearly define as part of the grain is considered as "core", the portion from the center of the grains or part of the grains covered by the shell or otherwise. In order to clearly define, the use of the term such as core/shell grain that has been conventionally used in the art and disclosed in the present specification should be used such as the language disclosed on page 18 such as core portion rich in iridium and the shell portion rich in metal other than iridium, and wherein the core portion correspond to 50 % of total mol of the silver halide grains.

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In the absence of using the term "shell" therein, it is unclear whether part of the shell is considered as part of the core. The claim is also unclear with respect to the amount of the metal other than iridium and is unclear with the portion containing the metal other than iridium. Therefore, the invention as claimed fail to clearly reflect the subjected matter disclosed in the specification that the applicants regard as their invention.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-9, 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikari (US Patent No. 6,482,583) in combination with Wey et al (US Patent No. 4,552,838) and Publication No. 2000-066325 (PN'325).

Akari discloses a photothermographic material substantially as claimed. The material contains silver halide grains, a non-photosensitive silver salt, a reducing agent and binder, wherein the silver halide grains include core/shell structure having 2 to 4 layers and has in its inside a coordination metal complex having a metal of group III to XIV in the Periodic Table. See abstract, and column 10 lines 23-68. The most preferred metal including the iridium complex is disclosed in column 11, lines 1-25; the amount of the metal complex added to the grains is within an amount of  $1 \times 10^{-8}$  to  $10^{-3}$  per mole of silver (col.12, lines 35-38), and can be added to the reaction system where the grains are formed (col. 12, lines 25-30); the coordination of metal complex or metal ion may be doped inside the silver halide grains, or alternatively, it may be

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doped into the grains in such a manner that the surface phase of the grain could have an increased dopants (column 11, lines 40-54); the dopants include the metal complex of Fe, Ru, Os, Co, Rh, Ir or Re (column 12), and the silver halide are chemically sensitized with known chemical sensitizer such as sulfur, selenium or tellurium (col. 13, lines 3-36); the mean of grain size falls within 8 nm to 70 nm (col. 10, lines 18-23). Wey in column 12, lines 17-62 discloses a core/shell grains wherein the dopant can be reliably confined to the interior of the silver halide grains. PN'325 in the abstract discloses silver halide emulsion having metallic compound dopant and iridium compound dopant in combination to provide silver halide material with high illumination, improved off track and reduced fog.

Ikari discloses a photothermographic material containing silver halide grains having the coordination of metal complex or metal ion that may be doped inside the silver halide grains, or alternatively, it may be doped into the grains in such a manner that the surface phase of the grain could have an increased dopant, and the metal complexes include metal of group III to XIV in the Periodic Table Fe, Ru, Os, Co, Rh, Ir or Re. The silver grains wherein the dopants confined in the interior of the grains have been known in Wey, and PN'325 to use a combination of iridium and a metallic compound to provide silver halide material with high illumination, improved off track and reduce fog. It would have been obvious to the worker of ordinary skill in the art at the time the invention was made to dope the silver halide grains in the core or the surface thereof with iridium metal in combination with the its known equivalent with an expectation of reducing reciprocity failure and provide a photothermographic material with good image, storage stability and reduction in fog.

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6. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ikari (US Patent No. 6,482,583) in combination with Wey et al (US Patent No. 4,552,838) and Publication No. 2000-066325 (PN'325) as applied to claims 1-9, 11-12 above, and further in view Farid et al (US Patent No. 5,747,236). Farid et al disclose fragmentable electron donor to increase the sensitivity of silver halide emulsion. It would have been obvious to the worker of ordinary skill in the art at the time the invention was made to use fragmentable electron donor taught in Farid to increase the sensitivity of the material taught in Ikari et al, and thereby provide a material as claimed.

7. Claims 1-2, 11-12 rejected under 35 U.S.C. 103(a) as being unpatentable over Zou (US Patent No. 6,060,231). Zou discloses a photothermographic material substantially as claimed. See abstract wherein the material contains photosensitive silver halide grains doped with iridium and copper, a non-photosensitive reducible source of silver, a reducing agent and a binder; the silver halide grain having size of 10 to 50 nm in column 8, lines 3539; the metal dopant that may be added any time during the formation of silver halide grains in column 8, lines 60-65; the silver halide core/shell grains in column 7; and the chemical sensitizer in column 10, lines 1-19. Zou may not specifically disclose the silver halide grains includes iridium and a metal of groups 3-10 of the periodic table other than the iridium, and wherein 90 % or more of total of iridium amount is contained in a core of the grain, wherein the core of the grain corresponds to 50 % of the total mol% of the silver halide grain, but suggest the doping of iridium and copper inside the silver halide grain. It would have been obvious to the worker of ordinary skill in the art at the time the invention was made to internally dope the silver halide grains such as suggested in Zou including the core of the grains correspond to 50 % of the total mol% of the silver halide grain

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with expectation of achieving a material excellent storage stability and sensitometry characteristic.

### ***Response to Arguments***

8. Applicant's arguments filed February 3, 2005 have been fully considered but they are not persuasive because of the reason set forth in the rejection above. Ikari and Zou discloses the use of the metal inside of the silver halide, and the scope of core of the grains corresponds to 50 % of the total mol% of the silver halide grains is considered as the part inside of the silver halide grain, and would have find obvious to the worker of ordinary skill in the art. Moreover, it has been known in Wey et al to dope of the core of silver halide grain to provide silver halide emulsion with increased speed, higher maximum density, and longer exposure latitude (column 9, lines 22-27). Therefore, it would have motivated to the worker of ordinary skill in the art to use a silver halide grains having doped with metal in either in the core or in the shell with an expectation of increasing the sensitivity of the photothermographic material.

The Declaration provided submitted on August 23, 2005 fails to overcome the rejection above. The Declaration is not commensurate with the scope of the claimed invention. The core of 30 % or 25 % is outside the scope of 50 % of the grain claimed in the present claimed invention. The Declaration is related to the core/shell grains while the shell is not claimed. The use of two such as Cu and Fe is not commensurate with the scope of "metal of groups 3-10 of the periodic table other than iridium" present in the claim. The scope of the metal of group 3 to 10 of the periodic table is so broad and only two metals are used. There are a lot of metals are not tested. Therefore, the results shown therein is not commensurate with the scope of the claims.

### ***Conclusion***

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9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thorl Chea whose telephone number is (571) 272-1328. The examiner can normally be reached on 9 AM-5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia H. Kelly can be reached on (571)272-1526. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tchea *idh*  
02-03-2006

*Thorl Chea*  
Thorl Chea  
Primary Examiner  
Art Unit 1752